REMARKS

In response to the above-identified Office Action, Applicant has amended the specification to correct typographical errors, amended claims 1, 3 and 39 to further clarify the language recited therein and to correct minor informalities, and added claims 44-46, as shown above. Support for the amendments to the claims and the added claims is found at page 9, lines 1-19; page 9, lines 5-10; and FIG. 6 in the above-identified application. Accordingly, no new matter has been entered by way of these amendments and added claims. In view of these above amendments and the following remarks, Applicant hereby requests further examination and reconsideration of the application, and allowance of claims 1-46.

Applicant respectfully notes that the above-identified Office Action addresses only claims 1-7, yet the above-identified application as originally filed and when considered by the Office contained claims 1-43. To the undersigned's knowledge, no restriction requirement has been issued by the Office. Accordingly, the undersigned contacted the Office on February 2, 2004 to discuss the status of claims 8-43 and whether a complete response to the outstanding Office Action would require addressing claims 8-43. As requested by the Office during that February 2 discussion, the undersigned submits the following summary of the discussion. The Office informed the undersigned that a complete response to the above-identified Office Action would require addressing the issues raised in the Office Action with regard to claims 1-7 only. The Office stated that since claims 8-43 were not considered by the Office, a complete response to the above-identified Office Action did not require discussing claims 8-43.

The Office has rejected claims 1-4 under 35 U.S.C. § 102(b) as being anticipated by Applicant's admitted prior art consisting of FIGS. 1-2 and page 2, lines 1-11 in the above-identified application ("Applicant's FIGS. 1-2"), claims 1-4 under § 102(b) as being anticipated by U.S. Pat. No. 6,078,132 to Davenport ("Davenport '132"), claim 5 under 35 U.S.C. § 103(a) as being unpatentable over Applicant's FIGS. 1-2 in view of GB Patent Application No. 2,352,869 to Davenport ("Davenport '869"), claim 6 under § 103(a) as being unpatentable over Applicant's FIGS. 1-2 in view of U.S. Pat. No. 5,864,209 to Clark ("Clark"), and claim 7 under § 103(a) as being unpatentable over Applicant's FIGS. 1-2.

The Office asserts that Applicant's FIGS. 1-2 disclose a lamp (FIGS. 1-2) including: an anode (12), a baffle (14) and an electrical insulator (16) wherein the electrical insulator includes a first surface (left side surface in FIG. 2) connected to a first surface of the

baffle and a second surface (right side surface in FIG. 2) of the electrical insulator connected to a first surface of the anode, the electrical insulator having a transverse cavity extending from a first through-hole in the first surface of the electrical insulator to a second through-hole in the second surface of the electrical insulator, the electrical insulator having a gap in the transverse cavity, the gap is adjacent the second through-hole in the electrical insulator or spaced in from the first and second through-holes in the electrical insulator and extends substantially around the transverse cavity.

The Office concedes that Applicant's FIGS. 1-2 do not disclose the anode of the lamp including a radiator, but asserts that Davenport '869 discloses a lamp anode with a radiator (page 8, lines 23-31). The Office also concedes that Applicant's FIGS. 1-2 do not disclose the electrical insulator 16 being made of a ceramic material, but asserts that Applicant's FIGS. 1-2 suggests using dielectric materials for the insulator 16, such as the ceramic, and as a result it would have been obvious to one of ordinary skill in the art to use ceramic for the insulator 16. The Office further concedes that Applicant's FIGS. 1-2 do not disclose the cathode 20 being coated with an electron emitting material, but asserts that Clark discloses a cathode coated with electron emitting material (col. 1, line 37 – col. 2, line 7).

The Office also asserts that Davenport '132 discloses a lamp (FIG. 1) including anode (27), a baffle, wherein the electrical insulator includes a first surface (left side surface in FIG.1) connected to a first surface of the baffle and a second surface (right side surface in FIG.1) of the electrical insulator connected to a first surface of the anode, the electrical insulator having a transverse cavity extending from a first through-hole in the first surface in the electrical insulator to a second through-hole in the second surface of the electrical insulator, the electrical insulator having a gap in the transverse cavity, the gap is adjacent to the second through-hole in the electrical insulator or spaced in from the first and second through-hole in the electrical insulator or extends substantially around the transverse cavity.

Applicant's FIGS. 1-2, Davenport '132, Davenport '869, and Clark, alone or in combination, do not disclose or suggest, "an electrical insulator ... having a gap in the transverse cavity, wherein one or more surfaces of the transverse cavity forming the gap are detached from ... the baffle," as recited in claim 1. With regard to Applicant's FIGS. 1-2, the Office's attention is respectfully directed to FIG. 1 and page 2, lines 4-5 in the above-identified application, which disclose that the insulator 16 has a cavity 28 between the anode

12 and the baffle 14, as shown in FIG. 2 and discussed at page 2, lines 9-13 in the application. However, Applicant's FIGS. 1-2 do not teach nor suggest the insulator 16 having any type of gap in any of the interior surfaces within the cavity 28 as claimed, let alone one or more surfaces of the cavity 28 forming the gap being detached from the baffle 14. As shown in FIG. 2, conductive material 26 accumulates on the interior surface of the cavity 28 in the insulator 16 as a result of sputtering caused by repeatedly striking the anode 12 with thermoelectrons, as discussed at page 2, lines 8-11 in the above-identified application. Further, the material 26 accumulates in the cavity 28 since there is no gap in the cavity 28 for the material 26 to escape to. The accumulation of the conductive material 26 forms a conductive path between the anode 12 and the baffle 14 leading to short circuiting and other undesirable effects, as discussed at page 2, lines 11-13.

The Office's attention is directed to FIG. 1 and col. 3, lines 50-51 in Davenport '132, which disclose that the intermediate dielectric member 29 has an opening 30 in between the anode 27 and the baffle 28 that provides access in the member 29 through the baffle 28 to the anode 27. Referring now to col. 4, lines 38-46 with continued reference to FIG. 1 in Davenport '132, the surface of the baffle 28 facing the intermediate dielectric member 29 near the opening 30 is convex. The surface of the intermediate dielectric member 29 near the opening 30, which faces the convex surface of the baffle 28, is concave. The concave surface in the intermediate dielectric member 29 is attached to the corresponding convex surface of the baffle 28 as shown in FIG. 1.

In Davenport '132, when electrons pass into an opening in the baffle 28 near the convex surface of the baffle 28 and into the opening 30 in the intermediate dielectric member 29, the electrons are formed into a "ball of fire" B for producing light. However, the concave surface of the intermediate dielectric member 29 facing the baffle 28 does not form a gap in the opening 30 having any surfaces that are detached from the baffle 28, as claimed. There is also no gap formed in the opening 30 of the intermediate dielectric member 29 between the anode 27 and the concave surface of the member 29 facing the baffle 28 as shown in FIG. 1 of Davenport '132. As a result, sputtered conductive materials will accumulate in the opening 30 in the intermediate dielectric member 29 to eventually form a contiguous conductive surface in the opening 30 between the anode 27 and the baffle 28 because the sputtered materials cannot escape the opening 30.

Similarly, Davenport '869 and Clark fail to teach or suggest an electrical insulator having a gap in the transverse cavity where one or more surfaces of the transverse

cavity are detached from the baffle as claimed. Referring to Davenport '869 at FIG. 14 and page 7, line 17 through page 8, line 4, a ceramic support 29 with a through-hole 69 is disclosed. The through-hole 69 allows for the passage of electrons from a focusing electrode 28 into the support 29 towards an anode plate, as disclosed at page 8, lines 2-4 in Davenport '869. As shown in FIG. 14, a portion of the through-hole 69 in the support 29 near a forward surface 66 is larger than another portion of the through-hole 69 near a rear surface 67. However, the surfaces of the through-hole 69 forming the larger portion of the through-hole 69 are not detached from the focusing electrode 28 as claimed. The surfaces in the larger portion of the through-hole 69 simply accommodates the spherical dimple of the focusing electrode 28 shown in FIG. 12, as disclosed at page 8, lines 2-3 in Davenport '869.

Referring to Clark at col. 3, lines 51-62 and FIGS. 1, 2, 3A and 3B, a discharge lamp 10 is disclosed as having an anode cylinder 12 with a cylindrical surface 16. Referring to FIG. 3A, the cylindrical surface 16 of the anode cylinder 12 surrounds an anode 35, as discussed at col. 4, lines 19-20. The cylindrical surface 16 has a concave depression 33 with an aperture 34 in the center of the depression 33, as disclosed at col. 4, lines 14-17. Referring to FIG. 3A, electrons emitted from a cathode 30 travel along a path 30 into the aperture 34 in the concave depression 33 of the cylindrical surface 16 towards the anode 35, as discussed at col. 4, lines 23-26. If the Office interprets the concave depression 33 and aperture 34 on the cylindrical surface 16 of the anode cylinder 12 as being a focusing electrode or baffle, then there is no insulator with a transverse cavity between the aperture 34 and the anode 35 to provide a gap in, as shown in FIG. 3A. Referring to col. 4, lines 27-32, there is a space filled with gas between the aperture 34 and the anode 35, but this space does not provide any sort of transverse cavity to form the gap in. If the Office interprets the anode cylinder 12 as being the insulator, the aperture 34 as being the transverse cavity, and the concave depression 33 as being the gap, then there is no baffle or focusing electrode for the surfaces of the cylinder 12 forming the depression 33 to be detached from nor is there any teaching or suggestion of a gap formed in the surfaces of the cylinder 12 forming the aperture 34. Further, the anode cylinder 12 is not an insulator since it is made of nickel, as disclosed at col. 3, lines 56-57.

Referring to the above-identified application at page 5, lines 7-11; page 6, lines 13-19; page 7, lines 4-10; page 8, lines 9-32 and FIGS. 3, 4 and 6, a gas discharge lamp 30 includes a light emitting assembly 40(1) having an anode assembly 47 comprising a spacer 46. The spacer 46 is connected to an anode 42 and a baffle 44 as shown in FIG. 6 in the above-identified application. The spacer 46 has a transverse cavity 74 with a gap 80 formed

in the cavity 74, as described at page 7, lines 27-30. Basically, the gap 80 provides changes in the elevation of the internal horizontal surfaces of the cavity 74 to create discontinuous surfaces between the anode 42 and baffle 44, as discussed at page 9, lines 14-18.

Providing the gap 80 in the transverse cavity 74 to create uneven surfaces between the anode 42 and the baffle 44 with at least one detached surface is beneficial for several reasons. As discussed on page 9, lines 12-14 with continued reference to FIG. 6 of this application, conductive materials that may sputter or evaporate into the cavity 74 when the anode 42 (or baffle 44) is stricken by thermoelectrons emitted from the cathode 48 can escape the cavity 74 through the gap 80. Without a gap 80, the sputtered conductive materials would eventually accumulate and form contiguous conductive paths along the interior surfaces of the transverse cavity 74 which would lead to short circuiting, as discussed at page 9, lines 12-19 in the above-identified application.

Preventing short circuiting in the spacer 46 reduces equipotential field structure fluctuations in the lamp 30, as disclosed at page 4, line 12 in the above-identified application. Reducing equipotential field structure fluctuations minimizes "noisy" or unstable light output in the lamp 30, and also prevents undesirable arcing and current leakage from occurring in the lamp 30, as disclosed at page 4, lines 13-18 in the above-identified application. As a result, the gas discharge lamp 30 disclosed in the above-identified application meets or exceeds industrial operational and light output intensity maintenance performance requirements, as set forth at page 4, lines 18-20 in the application. In view of the foregoing amendments and remarks, the Office is respectfully requested to reconsider and withdraw the rejections of claim 1. Since claims 2-9 and 44-46 depend from and contain the limitations of claim 1, they are distinguishable over the cited art and are patentable in the same manner as claim 1.

Additionally, Applicant's FIGS. 1-2, Davenport '132, Davenport '869 and Clark, alone or in combination, do not disclose or suggest, "wherein at least one of the surfaces of the transverse cavity forming the gap that is closest to the first through-hole is spaced away from the first through-hole by a portion of the transverse cavity," as recited in claim 3. As discussed above, Applicant's FIGS. 1-2 do not teach nor suggest the insulator 16 having a gap in the cavity 28, let alone at least one of the surfaces of the insulator 16 forming the gap that is closest to a first through-hole in the insulator 16 being spaced away from the first through-hole by a portion of the cavity 28 as claimed. The Office's attention is directed back to FIG. 1 and col. 3, lines 33-51 in Davenport '132, which disclose the intermediate

dielectric member 29 having the opening 30 in between the anode 27 and the baffle 28. As discussed above, the surface of the intermediate dielectric member 29 facing the baffle 28 near the opening 30 in the member 29 is concave as shown in FIG. 1. Also discussed above, the concave surface of the intermediate dielectric member 29 is not a gap. Furthermore, there is no portion of the concave surface of the intermediate dielectric member 29 closest to a hole in the member 29 for the opening 30 that is spaced away from the hole by a portion of the member 29.

As shown in FIG. 1 of Davenport '132, a hole is formed in a planar surface of the member 29 facing the baffle 28 immediately before the concave surface in the member 29. The hole in the member 29 corresponds to a hole in the baffle 28 where the electrons E initially enter to create the "ball of fire" B, as disclosed in col. 4, lines 38-46 in Davenport '132. However, the portion of the concave surface in the member 29 closest to the hole in the member 29 is not spaced away from the hole by a portion of the member 29. As shown in FIG. 1 of Davenport '132, the member 29 has another hole for the opening 30 that is formed in the member 29 immediately after the concave surface. Further, the other hole in the member 29 corresponds to another hole in the convex surface of the baffle 28. However, the portion of the concave surface in the member 29 closest to the other hole in the member 29 is not spaced away from the other hole by a portion of the member 29. Also discussed above, Davenport '869 and Clark fail to teach or suggest a gap in the transverse cavity of an insulator with one or more surfaces being detached from a baffle as claimed, let alone any surfaces of the gap being spaced away from a first through-hole in the insulator by a portion of the transverse cavity as claimed.

As discussed above in connection with page 9, lines 1-5 and FIG. 6 of the above-identified application, an anode assembly 47 is disclosed as having a spacer 46 with a transverse cavity 74 that includes a gap 80. As shown in FIG. 6, the gap 80 is adjacent the second through-hole 78, although the gap 80 may be located elsewhere in the cavity 74, such as being spaced in the transverse cavity 74 away from the first through-hole 76 and/or the second through-hole 78, as disclosed at page 9, lines 7-10 in the above-identified application. However, providing one or more gaps 80 in the transverse cavity 74 at different locations along the cavity 74 allows the spacer 46 to be used with a variety of arc discharge lamps that have different requirements with respect to preventing the accumulation of sputtered conductive materials from anodes and/or baffles. By way of example only, one type of arc discharge lamp may require a spacer 46 with just one gap 80 in the transverse cavity 74 that is located near the anode 42 because the type of material comprising the anode 42 typically

sputters a substantial amount of conductive materials when stricken by thermoelectrons. However, and by way of example only, another type of arc discharge lamp may require a spacer 46 with a gap 80 in the transverse cavity 74 that is located near the baffle 44 because the type of material comprising the baffle 44 typically sputters a substantial amount of conductive materials when stricken by thermoelectrons. In view of the foregoing amendments and remarks, claim 3 is distinguishable over the cited art and is patentable for these additional reasons.

In view of all of the foregoing, it is submitted that this case is in condition for allowance and such allowance is earnestly solicited. In the event that there are any outstanding matters remaining in the above-identified application, the Office is invited to contact the undersigned to discuss this application.

Respectfully submitted,

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3/15/04 (Date) | Sherri A. Moscato (Sherri A. Moscato)